EDITORIAL

Social LCA—a way ahead?

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Roughly since 2004, there has been an ever increasing interest in developing and using social life cycle assessment (SLCA). A quick overview of the SLCA publications indexed by SCOPUS[1] shows a small but stable increase from 2004 (Fig. 1).

With regard to scientific publications, the *International Journal of Life Cycle Assessment* has been the leading journal covering this field with around 85 % of the above publications, to a large extent probably due to the very early explicit interest from the journal and the announcement of a dedicated subject editor, David Hunkeler, whose role was later taken over by Tom Swarr. Thanks to these persons, the authors who have contributed and the timely interest from the journal, it seems that a new field of research has been established which is growing year by year—a development I will do my best to sustain during my time as subject editor on the SLCA area on the *International Journal of Life Cycle Assessment*.

Despite this activity, it seems fair to state, as it has been so many times before, that SLCA is still in its infancy. But the 'infant' is now close to a decade, so how come it has not matured more?

My claim is that SLCA will continue to be considered in its infancy until it has more profoundly 'proven to work'. But what does it mean that the SLCA works? I would guess that for many a solid 'proof' would depend on at least two aspects: First of all that the methodology actually does 'what it is supposed to do' and secondly, that what SLCA does has to be unique or at least that the SLCA has to 'do what it is supposed to do' better than other comparable tools. If SLCA does not do what it is supposed to do, then at least the motivation for developing it needs to be reconsidered, and if what SLCA does is not unique in some way, there seems to be little point in developing a new tool for doing the same as some other tool is already doing.

But what is SLCA supposed to do? From a first glance, it seems that SLCA is to deliver decision support relating to the social impacts of products (or services, systems or technologies—here termed products), to be used either for comparing products or identifying hotspots (Benoit and Mazijn 2009). In this regard, it may seem that SLCA already delivers. For example, case studies have already been conducted relating to, e.g. cut roses (Franze and Ciroth 2011), tomatoes (Evans et al. 2009) or laptop computers (Ekener-Petersen and Finnveden 2012). These studies do, indeed, provide an assessment of social impact of products which could be used for decision support. The question is, however, what decisions the decision support provided through SLCA is to support? The only obvious answer seems to be decisions leading to more beneficial social conditions throughout the product life cycles. If the use of SLCA in decision making does not lead to an improvement of these social impacts, then it seems as a rather pointless affair to develop, carry out and consider the SLCA result in a decision context. Thus, SLCA is to deliver decision support which improves the social impacts in the product life cycles when considered in a decision context.

However, this idea of developing decision support in improving social conditions is far from new. Take, for

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[1] The literature search was made in SCOPUS by searching for the words SLCA, social LCA, societal LCA, social life cycle assessment or societal life cycle assessment in the title, abstract or keywords of articles and including only the articles relating to life cycle assessment literature (subtracting the ones relating to simplified LCA, which is also often abbreviated SLCA). Note that SCOPUS do not index all journals. The numbers should therefore be seen as showing a trend rather than absolute values.

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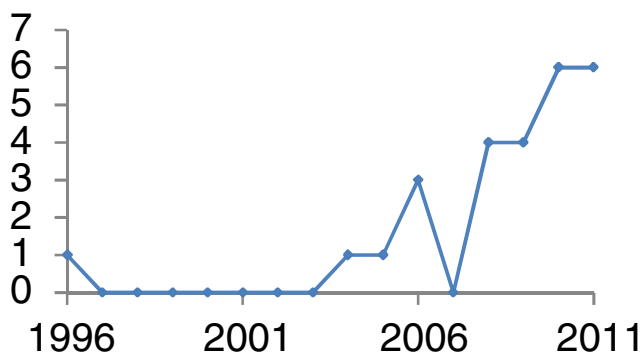2800 Kgs. Lyngby, Denmark
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Fig. 1 Overview of the SLCA publications indexed by SCOPUS

example, fair trade labels which can also be seen as labels providing the customer with decision support about social impacts of the product and which through its influence on the customer's decision is also assumed to lead to improved social conditions (e.g. Nelson and Pound 2009). The overall idea, therefore, is not new but still SLCA may provide this functionality for different decisions than tools already on the market. Thus, according to this outline, for the SLCA 'to work', it has to provide decision support which improves social impacts related to products in a way that is different from what is possible through existing tools.

In the following, I will outline how SLCA could be developed so that it 'works', i.e. is unique compared to comparable tools and so that it improves the social impacts of products. I will equally outline the problems relating to making SLCA 'work' which will serve as a outline of what I see as the most pressing research topics for future work.

1 The unique feature of SLCA

In short, SLCA can be understood as a methodology for providing decision support about the social impacts related to product life cycles. By including, potentially, the entire product life cycle in the assessment, the SLCA has a more holistic perspective on the impacts of products than comparable social assessment tools. This more holistic assessment among others allows the decision maker to compare decision alternatives with regard to a more complete account of the social impacts of products than other social assessment tools.

For providing this holistic assessment of a product's social impacts, SLCA needs to include an assessment of, at least, the most significant parts of the product life cycle. Even though it has been discussed what the significant parts of the life cycle actually amounts to (Dreyer et al. 2006; Weidema 2005), it will in most cases include several tiers in the life cycle, meaning that an assessment of the social impacts related to one life cycle stage will rarely be enough. More life cycle stages will often need to be included in the assessment. In most cases, data thus have to be collected relating to the social impacts of several

product life cycles. When doing this, it is important to remember that social impacts tend not to be related to the nature of the process but are rather dependent of the conduct of the, e.g. company carrying out the process (Spillemaeckers et al. 2004; Dreyer et al. 2006). This implies that it will not be enough to know what e.g. a product is made from in order to say something about most social impacts. Rather, data about the specific conduct of the company included in the product life cycle are needed. Yet, getting data about the conduct of specific companies may be a very demanding task. Some companies for example claim that this data is very hard or even impossible to get (Jørgensen et al. 2009). This conclusion seems to be supported by the case studies performed: SLCA case studies tend to include one or very few life cycle stages, and even though this may not be reflected upon in the case study, a reason for limiting the study in this way may very well be due to the problem of getting data.

Summing up, one way for the SLCA to provide a unique functionality would be to enable a holistic assessment of a product's social impacts, including several stages in the life cycle. However, getting accurate data about these seems to be very demanding. An absolutely central challenge in order for SLCA to work will therefore be to find ways to make available data about social impacts of product life cycle stages.

One approach could be to base the SLCA on indicators that are more closely related to the nature of the process than the indicators used today (see Jørgensen et al. 2008 for an early overview). An example may be the attempt to relate value creation from product life cycles and increases in average lifetime (Norris 2006; Feschet et al. 2012). However, a potential problem with this approach seems to be that these more process-related indicators seem to have difficulties in capturing the breadth of what is normally considered as social impacts in SLCA literature.

Another approach could be to make databases of social impacts related to sectors and countries. Hereby, if a SLCA user knows where the various stages in the life cycle is taking place, the user may use this as a basis for the SLCA. Such solutions are already becoming available, for example through the Social Hotspot Database (2012). However, given that there, in many cases, will be significant differences within one sector in a country, the SLCA based on this approach will easily become highly uncertain and will therefore probably not be usable for all purposes.

2 Improving social impacts though using SLCA for decision support

As was pointed out in Jørgensen et al. (2012), the use of SLCA in decision support can in several different ways be imagined to lead to an improvement of social conditions in the life cycle. Even though literature on this topic is scarce,

my impression is that a common logic behind assuming that the use of SLCA in decision support will lead to improvements in the product life cycle is that it allows decision makers to choose the alternative among several which leads to the most beneficial social impacts. Had the decision maker not had the SLCA at hand, the decision maker would not have the possibility to identify this alternative and would, in relation to social impacts, have to choose randomly. On average, basing the decision on a SLCA would thereby lead to more socially beneficial situations than decisions made without the SLCA.

If this is how the SLCA is to improve social impacts, the SLCA therefore has to show what social impacts a decision alternative causes. However, current practice in SLCA case studies is to omit significant parts of what social impacts a decision is causing, namely the social impacts product life cycles 'cause' when they are not implemented (Jørgensen et al. 2012). Following real example will probably make this claim more understandable: In 2006, Nike discovered that one of their suppliers, Saga Sports in Pakistan, employed child labour. In fear of moral condemnation from their customers, Nike chose to sever their contract with the company and find another supplier. But since 70 % of Saga Sports' production went to Nike, many of the 4,000 workers were dismissed, impacting not only the workers but also the local society, where an estimated 20,000 people depended on the income from the football production (CSR monitor 2006). As can be seen from this small example, the implemented life cycle obviously led to child labour, but the avoided life cycle led to significant poverty among the previous workers. A SLCA omitting these latter social impacts would endorse the choice to move the production (given that the working conditions here were better) and be ignorant about the negative social impacts that this would create for the employees and local community. The use of such SLCA for decision support would therefore not in any obvious way improve the social impacts for the workers in Saga Sports but rather aggravate their situation.

This may be an extreme case, but it shows that assuming that a positive effect will come from using 'standard' SLCA in decision support may be unsubstantiated. Thus, for SLCA to work and actually create a beneficial social impacts changes in the way in which SLCAs are conducted or used will most likely have to be made. One approach suggested in Jørgensen et al. (2012) is to include not only an assessment of the social impacts of the occurring product life cycle but also an assessment of the impact of the avoided life cycle—i.e. what happened when Nike moved its production in the case above. In this way, the SLCA would in the example above capture both the impact related to stitching the footballs, but also the impacts on the workers and the local community if this production was moved, hereby allowing the decision maker to choose the alternative which lead to the best overall changes, enabling a positive effect from the use of SLCA in decision support. However, this suggestion is far from a miracle cure. The

additional assessment of what would happen to workers and local community had the footballs not been made at Saga Sports will among others significantly add to the data collection which as noted above is already a significant burden of performing SLCA.

3 Future work

As outlined above, for the SLCA to work, it is in my view absolutely central to solve the two problems, namely the problem related to the data availability and the problem related to the lack of effect of using SLCA for decision support. Several suggestions were made, which may serve as useful inspiration for future work.

The emphasis of these two problems is a personal account of what I see as the main challenges for the future development of SLCA and is based on what could be termed a 'top–down' approach to the development of SLCA. In other words, it is an approach where I have made an analysis of what SLCA has to live up to be, in my view, worthwhile developing, and on this basis outlined methodological elements which the SLCA necessarily will have to include. Most current work on SLCA is much more based on what could be considered 'bottom–up' research, where case studies are performed and from which researchers gradually learn about and develop SLCA.

Both approaches have their merits and drawbacks: When actually applying SLCA approaches to real cases, much hands-on experience is gained and ideas may arise which would never have been thought of if the development of SLCA had been based purely on a top–down approach, for example, experience with the actual availability of data, as discussed above. But at the same time, it is important that the bottom–up approach does not stand alone, as several issues cannot be addressed through the conduct of case studies. It is, for example, easy to imagine that if the development of SLCA was solely based on the conduct of case studies issues like the potential lack of effect of using SLCA, as addressed above, it would easily be overlooked.

I hope that future work on SLCA will balance these two approaches in order to ensure that SLCA either grows from infancy to maturity or, if this proves infeasible due to demands like the ones stated above, will be left behind as a well-investigated potential offspring of LCA which proved unviable in practice.

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